VETERANS HEALTH ADMINISTRATION (VHA)

TELEREHABILITATION TOOLKIT

March 2005

Developed by the:

VHA Telerehabilitation Field Work Group
Cathy Cruise, MD Chair

VHA Telehealth Strategic Healthcare Group
Adam Darkins, MD, MPH, FRCS Chief Consultant

VHA Rehabilitation Strategic Healthcare Group
Lucille Beck, PhD

VHA Telerehabilitation Field Work Group
Effective March 2005

TeleRehabilitation FWG Chair: Dr. Cathy Cruise, New York, NY

VISN	Representative	VAMC
1	Lynn Burns, PT	Boston, MA
	Carlos Tun, MD	Boston, MA
	Sunil Sabharwal, MD	West Roxbury, MA
2	Teri Witkowski, PT	Syracuse, NY
3	Jonathan Glasberg, MA	New York, NY
	Carol McMara Gill	East Orange, NJ
	Karen Renee Farrell	East Orange, NJ
4	Faren Williams, MD	Philadelphia, PA
5	Robert Kane, MD	Baltimore, MD
6	Helen Hoenig, MD	Durham, NC
	Susan Jensen, MD	Salisbury, NC
7	Dale Strasser, MD	Decatur, GA
8	Kathleen Horn, OT	Gainesville, FL
	Charles Levy, MD	Gainesville, FL
	Steven G. Scott, MD	Tampa, FL
	Douglas Gephart, MS	Tampa, FL
	Pat Dasler	Gainesville, FL
9	Linda Halperin, MD	Knoxville, TN
10	David Van Winkle, PhD	Dayton, OH
	Chester Ho, MD	Cleveland, OH
	Christine Woo, MS	Cleveland, OH
11	Carolyn J Wilson	Battle Creek, MI
12	Monica Steiner, MD	Hines, IL
15	Cheryl Ova LPN	Kansas City, MO
	Ray Bayer	Marion, IL
	Jeff Mocilan	Marion, IL
	Mary Haffey	Marion, IL
16	Taralyn Wanderer Brooks	Houston, TX
	Susie Fowler	Jackson, MS
17	Malisha Patel	Dallas, TX
	Belinda Theophile	Dallas, TX
18	Michelle R Cramer, RKT	Prescott, AZ
19	Marilyn Selinger, PhD	Denver, CO
20	Jodie Haselkorn, MD	Seattle, WA
	Drew Blazey/	Seattle, WA
	Lynne Walker	Seattle, WA
21	Susan J. Gill	Fresno, CA
22	Robert McAnelly MD	Las Vegas, NV
	Nancy Harada, PhD	West L.A., CA
23	Rose C. Collins, PhD	Minneapolis, MN

VHA Telerehabilitation Field Work Group
Toolkit Section Contributors
Effective March 2005

Chair: Cathy Cruise, M.D.

Group 1 – Traumatic Brain Injury

1. Rose Collins, PhD (VISN 23)
2. Monica Steiner (VISN 12)
3. Steven G. Scott, MD (VISN 8)
4. Douglas Gepbart (VISN 8)
5. Susie Fowler (VISN 16)

Group 2 – SCI

1. Robert McAnelly, MD (VISN 22)
2. Nancy Harada, PhD (VISN 22)
3. Teri Witkowski (VISN 2)
4. Sunil Sabharwal, MD (VISN 1)
5. David Van Winkle, PhD (VISN 10)
6. Susan Gill (VISN 21)
7. Carol McMara Gill (VISN 3)
8. Karen Renee Farrell (VISN 3)
9. Chester Ho MD (VISN 10)
10. Christine Woo MS (VISN 10)

Group 3 - MS

1. Jodie Haselkorn, MD (VISN 20)
2. Drew Blazey (VISN 20)
3. Lynne Walker (VISN 20)
4. Robert Kane MD (VISN 5)
5. Malisha Patel (VISN 17)
6. Belinda Theophile (VISN 17)
7. Michelle Cramer (VISN 18)

Group 4 - Frail Elderly

1. Faren Williams MD (VISN 4)
2. Carolyn J. Wilson (VISN 11)
3. Kathleen (Kathy) Horn OT (VISN 8)
4. Susan Jensen, MD (VISN 6)
5. Jeff Mocilan (VISN 15)
6. Mary Haffev (VISN 15)
7. Nancy Harada, PhD (VISN 22)
8. Pat Dasler (VISN 8)

Groups 5 Specialty Clinics (speech, audiology, PT, OT, orthotics, prosthetics, seating, wheel chairs, etc)

1. Taralyn Wanderer Brooks (VISN 16)
2. Linda Halperin MD (VISN 9)
3. Teri Witkowski (VISN 2)
4. Cheryl Ova (VISN 15)
5. Marilyn Selinger, PhD (VISN 19)
6. Carlos Tun, MD - Lynn Burns, PT (VISN 1)
7. Jonathan Glasberg PT (VISN 3)
8. Ray Bayer (VISN 15)
9. Mary Haffey(VISN 15)

Group 6 Research

1. Dale Strasser, MD (VISN 7)
2. Helen Hoenig, MD (VISN 6)

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

Section 1: Background and Use of the Toolkit

BACKGROUND

This toolkit has been produced as a collaborative effort between:

1. VHA clinicians involved in delivering telerehabilitation health services
2. The VHA Telehealth Strategic Healthcare Group
3. The VHA Rehabilitation Strategic Healthcare Group
4. The VHA Telerehabilitation Field Work Group with representatives from each Veterans Integrated Service Network (VISN)

This particular toolkit addresses telerehabilitation health care using the following methods:

1. Real-Time (Videoconferencing) Telehealth Systems between VHA facilities
2. Store-and-Forward Telehealth Systems between VHA facilities
3. Home-Based Telehealth Systems with video or imaging capability (e.g., Video monitors with peripherals for monitoring vital signs, etc. and video telephones)
4. Other non-video Home-Based Telehealth Systems including In-Home Messaging Devices

This particular toolkit addresses telerehabilitation health care within the following settings:

1. Between two VA Medical Centers (VAMC's)
2. Between a VAMC and a Community Based Outpatient Clinic (CBOC)
3. Between a VAMC and a patient's home
4. Between Centers of Specialized Care (e.g., SCI, TBI, and MS) and other VAMC's and/or patients' homes
5. Other telehealth settings

USING THIS TOOLKIT

The purpose of this toolkit is to integrate the practices and procedures used in telerehabilitation in VHA for the benefit of patients and practitioners. This integration of processes and procedures applies to:

1. Establishing a new telerehabilitation service
2. Revising or reviewing an existing telerehabilitation service

The ideal way to use this toolkit is in conjunction with a steering group to assist with setting up and maintaining a telerehabilitation service. Typically a steering group includes persons, at the facility or VISN level, dependent upon the scope of the project, such as:

1. The lead clinician for the telerehabilitation services
2. Clinicians likely to be involved with telerehabilitation program to be developed
3. The local telehealth coordinator

4. A member of the executive leadership team
5. The local telerehabilitation service administrator
6. A representative from IT (Information Technology)
7. A VISN videoconferencing specialist
8. The local credentialing coordinator
9. A local representative for DSS (Decision Support System (for coding Workload))
10. A local representative from HIMS (Health Information Management Systems)
11. The Information Security Officer

This toolkit provides a framework to discuss essential items that should be considered when establishing telerehabilitation services**.** It is important to begin this process by assessing:

1. The need for telerehabilitation services (Section 2)
2. They way in which telerehabilitation services should be constructed (Sections 3, 4,5, and 6)
3. Outcome Measures and Evaluation (Section 7)
4. Necessary elements to make the services operational and to ultimately sustain the program (Section 8)

These sections will be supplemented by a number of additional resources:

1. Website links will be included throughout the text to facilitate direct connection to such items as VHA directives.
2. Additional policies and surveys will be attached and referenced throughout the text.

Section 2: Needs Assessment

REASONS FOR CONSIDERING TELEREHABILITATION SERVICES

Defining the reasons for considering telerehabilitation services

The steering group should determine why telerehabilitation is being considered as an alternative to face-to-face visits as the very first step in establishing a telerehabilitation program.

Typically, telerehabilitation programs have been started in the VHA:

1. In response to national initiatives to provide specific telerehabilitation services
2. To increase access in geographically remote areas where no current services exist
3. To provide alternative services in areas where it is difficult to recruit staff at the necessary level
4. To increase efficiency in places where travel time for current VHA clinicians would significantly diminish their clinical time

PERFORMING THE NEEDS ASSESSMENT

Long-term sustainability of any telehealth program requires methodical planning and evaluation.

Funds are often available to pilot a program, but evidence must be provided, in terms of quality and performance outcomes, in order to continue and/or expand a newly established program.

Informal vs Formal Needs Assessment:

Both formal and informal needs assessment should be conducted prior to the initiation of a telerehabilitation program.

A formal needs assessment and evaluation plan includes analysis of specific data fields available in large VA databases (VHA Austin database, VISN DSS database). For example, the VHA Austin and VISN level DSS (Decision Support System) databases contain information on all workload generated by patients, including outpatient visits, laboratory services, inpatient care, specialty referrals, pharmacy services, etc… With the assistance of a health services researcher, one needs to determine the patient population as well as the specific fields of relevance for analyses. For specific telerehabilitation programs, there may be local registries of interest. For example, there is an SCI registry available on VISTA, that contains information on patient demographics, social support, functional level, as well as clinical data related to SCI.

Additional criteria which need to be considered include clinic wait times, hospital admission rates, annual number of clinic and Emergency Room visits. Fiscal data may be utilized to determine high cost patients within a given clinic or VISN.

An informal needs assessment generally occurs as a conversational meeting among clinicians and is the simplest way to assess the needs and goals for developing a new telerehabilitation program. For example, a clinic-based SCI teleconsultation program was developed when a clinician in an SCI center noticed that there were many SCI patients who traveled to the SCI center for outpatient level evaluations. Travel and overnight stay for outpatient evaluation care is costly. The clinician set up informal meetings among originating site clinicians at the remote VAMC's and outpatient clinics to gather their opinions on the medical issues that could best be served with a telerehabilitation program.

There may be situations where a rehabilitation service may want to formally establish a telerehabilitation program. For example, funding may be available to set up a small scale telerehabilitation program. To maintain and/or expand the established telerehabilitation program, the program needs to show solid evidence that the telerehabilitation program provides cost-effective and greater benefits for patients over traditional care. In this situation, soliciting the assistance of a health services researcher to conduct a formal needs assessment and evaluation plan may be in order.

Clinical Considerations:

- Identify which telerehabilitation services are currently offered and those that are not.
- Identify gaps in service and/or access.
- Determine if these gaps could be addressed with a telehealth system.
- Determine if sufficient clinical resources available at both the originating and distant sites.
- Identify which patients could most benefit from telerehabilitation services by asking:
  - Who are the patients that are currently receiving treatment at the existing VHA facilities who could instead be served by telemedicine?
  - Who are the patients not currently receiving VHA services that might choose to begin services at the VHA if telerehabilitation was an available option?

Originating site Clinician, Distant site Clinician, and Patient Needs :

It is also crucial to be flexible to the needs of the clinicians at the originating site and the distant site. Specifically, clinician preferences and physical/technical issues at either site may affect the decision for use of store-and-forward vs. real-time telerehabilitation.

Examples of when store-and-forward telerehabilitation may be appropriate:

- diagnostic procedure is lengthy
- originating site physical space is limited/inadequate for real-time evaluation (i.e. no space to accommodate for wheelchair, lift, etc…)
- distant site provider time is costly
- patient who is already being seen by home care nurse prefers not to travel to originating site clinic
- evaluation may not require a patient to travel to originating site for teleconsultation (e.g. wound assessment)

A store-and-forward approach may be ideal for originating site clinicians who are comfortable with their technical ability to perform a procedure/take a digital image without the guidance of the distant site.

Discussion of store-and-forward test results (e.g., urodynamic evaluation) or digital images (e.g., pressure sores) can be scheduled at a mutually convenient time between originating site and distant site clinicians, OR the distant site physician can review test results/digital images at his/her convenience.

Examples of when real-time telerehabilitation may be appropriate:

- the originating site clinicians request the technical advice of distant site clinicians to perform a procedure
- the distant site physician needs to directly query the patient
- for wound assessments, the distant site physician needs greater control over which images are obtained

- for wheelchair evaluation, the distant site physician needs to assess seating interface pressures, seating posture, wheelchair propulsion and impact of wheelchair design on functionality
- the team requires a structured assessment of wheelchair and seating
- the patient requires immediate recommendations at the end of the session.

Real-time teleconsultation is essentially the same as doing a face-to-face clinic. The interaction must be scheduled for all parties involved. This modality may require the telerehabilitiation service to allocate a certain amount of FTE specifically for this purpose. The originating site clinic must also set aside some space and clinician time for the telerehabilitation videoconferencing.

Economic Considerations:

- Must consider costs associated with equipment, labor, and facilities.
- Capital investment, expenses and overhead.
- Start-up and ongoing sustainability.at both the distant site and originating site.
- May be complicated by concerns surrounding workload and reimbursement issues.

Technological Considerations:

- What existing equipment does the distant site and originating site already have
- What additional equipment needs to be leased / purchased?
- Will the equipment be multi-purposed? (e.g., videoconferencing equipment for clinical, educational, and administrative purposes)
- What are your VISN's standards and policies for telecommunication / videoconferencing / the Internet?
- What technical support services are available within your VISN or need to be contracted?

Real-time teleconsultation requires a reasonably high-bandwidth connection. An initial investment must be made for each clinic site to acquire and install equipment. For most VHA facilities, the basic telecommunications connections, networks, and equipment already exist for administrative purposes and/or other telehealth programs. However, the local Office of Information and network manager should be apprised of any planned additional uses of the equipment as well as the planned additional use of the local or wide area networks' bandwidth capacity.

Miscellaneous Needs Assessment Considerations:

- Possible changes to existing work relationships
- Possible changes to existing clinical workflow
- Possible need for further training

Section 3: Telerehabilitation Clinical Applications

TELEREHABILITATION GROUPS

1. Traumatic Brain Injury
2. Spinal Cord Injury/Disorders
3. Multiple Sclerosis
4. Frail Elderly
5. Specialty Clinics
6. Research

1. Traumatic Brain Injuries (TBI):

The use of Telehealth with the brain injury population offers exciting opportunities to enhance care as follows:

- Education and consultation between the clinical teams in the four national lead TBI Centers, and between these Centers and VAMC's without TBI teams.
- Education and consultation between the clinical teams in the four lead TBI Centers, and between these Centers and DoD Military Treatment Facilities MTF's
- Consultation between patients in VAMC's and CBOC's without TBI teams and the clinical staff in the four Lead TBI Centers.
- Use of monitoring and in-home messaging devices to connect veterans recently discharged from one of the Lead TBI Centers to home, with the clinic team in the Lead Center.
- Use of Internet-based neuropsychological screening
- Use of Internet-based treatment cognitive rehabilitation and education
- Widespread patient, family, care giver, and staff education

2. Spinal Cord Injury/Disease (SCI/D):

The use of Telehealth with veterans with Spinal Cord Injury offers exciting opportunities to enhance care as follows:

- Use of Real-time Videoconferencing for Education and consultation between the clinical teams in the SCI Centers, and between these Centers and VAMC's without SCI units.
- Use of Real-time and Store-and-Forward Consultation between patients (or discussion of patients) in VAMC's and CBOC's without SCI teams and the clinical staff in the SCI Centers.
- Use of Store-and Forward monitoring and in-home messaging devices to connect veterans recently discharged from one of the SCI Centers to home, with the clinic team in the SCI Center.
- Use of home-based videoconferencing systems for Real-time consultation between patients and their local VAMC/CBOC.
- Provide SCI sub-specialty care (e.g. complex SCI medical issues, e.g. urological, wheelchair, skin issues)

- Increase SCI patient and staff education
- Discharge planning for patients from remote areas involving family and clinicians at both locations
- Remote consultation regarding need for travel and hospital admission

3. Multiple Sclerosis (MS):

The use of Telehealth with veterans with Multiple Sclerosis offers exciting opportunities to enhance care as follows:

- Education and consultation between the clinical teams in the MS Centers of Excellence and the VAMC's without MS programs.
- Patient consultation with the MS Centers of Excellence.
- Use of monitoring and in-home messaging devices to connect veterans with MS in their homes to either the clinic team in the Center of Excellence, or to a VAMC with a MS Day Program.
- Widespread patient and staff education

4. Frail Elderly:
The use of Telehealth with Frail Elderly veterans offers exciting opportunities to enhance care as follows:

- Use of monitoring and in-home messaging devices to connect veterans in their homes to either the clinic team in the Center of Excellence, or to a VAMC with the LAMP team (Low ADL (Assisted Daily Living) Monitoring Program) that communicates with the Primary Care Physician (PCP.)

5. Specialty Clinical Services:

The use of Telehealth with veterans in clinics offers exciting opportunities to enhance care as follows:

- Provide consultation between veterans and clinic teams in rural areas with specialists in more urban areas.
- Allow remote evaluation and treatment for specialized services e.g., Speech Pathology Services.

6. Research:

There is almost an endless list of possible research projects designed to evaluate various VHA Telerehabilitation programs, including (but not limited to) investigation of each of the five preceding general clinical categories.

And while this toolkit cannot provide a complete list or Telerehabilitation research topics, consideration may be given to the following:

- Project Feasibility – Which clinical conditions can be paired effectively with which technologies for safe and effective telerehabilitation programs?

- Technology's Impact – How does videoconferencing and other telehealth technology affect evaluation and treatment for specialized services e.g., Speech Pathology, Gait Analysis . What adaptations or innovations are required?
- Clinical Effectiveness – How do clinical and functional outcomes from VHA Telerehabilitation compare with traditional face-to-face VHA Rehabilitation services?
- Cost Effectiveness – How do costs of VHA Telerhabilitation compare with costs of traditional face-to-face VHA Rehabilitation services?

Telehealth communication technology (e.g., videoconferencing) can be used to inform clinicians and patients at all VHA sites of new or existing research studies at hub sites or Center of Excellence sites, that may be of interest. VHA rehabilitation researchers should consider telehealth as a means to increase their patient base for research.

TYPES OF TELEREHABILITATION SERVICES

Home-Based Care Service via Telerehabilitation

Much of VHA's Home Telehealth is provided through regional Care Coordination programs, and guidance for Home-based telehealth is already addressed extensively in the VHA Care Coordination Home Telehealth (CCHT) Orientation Packet, and does not need to be repeated in this toolkit. Instead, Home-based telerehabilitation programs listed briefly above should use this toolkit in conjunction with the CCHT Orientation Packet in order to coordinate general telerehabilitation principles with home telehealth. Some home issues specific to Telerehabilitation are addressed in this toolkit (e.g., physical space requirements in Section 6. below.) Finally, it is important to keep in mind that the 'home' in Home Telehealth can be many things, including private residences, group residences, or other living facilities.

The CCHT Orientation Packet is available to VHA staff only, through the Office of Care Coordination's intranet at: http://vaww.va.gov/occ

Clinic-Based Care Services via Telerehabilitation

Since not all homes are adequate for Telerehabilitation services, most veterans still need to travel to their local VA clinic or hospital in order to receive care. Clinic-Based Telerehabilitation programs are created to improve access to specialized rehabilitative care as listed in 1.-5. above. Clinical, technical, and administrative requirements for Clinic-based programs are found throughout this toolkit.

Consultation Services via Telerehabilitation

Teleconsultation can occur provider-to-provider, provider-to-veteran, or provider-to-provider and veteran. Services can include reviews of general issues, verbal case reviews, remote chart reviews, and direct patient observation. In general, there are no specific veteran requirements. The driver for the provider-to-provider mode is the desire

on the part of the local health care provider (e.g. VHA primary care provider (PCP), State Veteran Home Provider, CBOC provider, or contract PCP) to seek specialty consultation. Provider-to-veteran contact will typically occur through referral from and in conjunction with a local provider. Veterans participating in video consultations must be able to travel to the originating site and consent to this type of consultation.

Clinical and business requirements for teleconsultation

Remote evaluation and consultation is a method of extending the expertise of a specialist to different locations. The effects of this remote intervention can be monitored in various ways including: changes to the veteran's treatment regimen, veteran and system cost savings related to travel, system cost savings achieved by extending the range of disease specialists, and by monitoring health care utilization.

Experience has been gained by the MSCoE in teleconsultation. From a business perspective there are two anticipated advantages of teleconsultation. The first is that it extends the range of the MS specialist. From a systems standpoint, one specialist can provide consultation to multiple locations, where the volume at each location would not justify hiring a specialist to serve that location. Hence, it is possible to calculate savings in terms of salary and associated benefits. The second potential cost savings is in terms of improved patient care. Such improvement could be manifested in improved compliance, changes in treatment, slowing of disease progression, increased function, and better symptom management. For veterans seen in teleconsultation one can monitor treatment implementations and disease progression using electronic medical records.

Technical requirements and issues for teleconsultation

Equipment for teleconsultation needs can be as basic as a telephone line or email. Both MS Centers East and West have an on call clinician who carries a pager and can be reached 24/7.

MSCoE East has completed a pilot study of neurological examinations done under the guidance of an MS specialist located at a distance from the veteran. Minimum specifications for this type of remote examination include reliable high-speed transmission rates, a pan, zoom, tilt (PZT) camera that can be controlled by the remote clinician, and a high-resolution monitor. MSCoE West has done teleconsultation with the State of Washington's Veterans Homes. Staff at both medical sites need appropriate training.

With respect to remote chart reviews by a distant MS specialist, MSCoE West uses CPRS remote views and the MSCoE East has obtained access to CAPRI, a compensation and pension program that permits access to charts for all patients in the VHA. This system also permits access to charts for veterans not currently entered into the Baltimore CPRS/VISTA system, thus allowing for better provider-to-provider teleconsultation.

***Store-and-forward modality*:**

Distant site provider recommendations that result from a store-and-forward consult are the responsibility of the originating site clinician, unless otherwise agreed upon by both parties. Store-and-forward consults should be reviewed in a timeframe that is understood by both parties (i.e. scheduled teleconsultation between originating site and distant site clinicians, or independent review of data/digital images by distant site clinician). The timeliness of treatment implementation by the originating site clinician will be guided by the diagnosis and treatment plan offered by the distant site provider and cannot be uniformly proscribed.

A mechanism should exist that alerts the distant site provider that a consult is pending and that alerts the originating site clinician that a consult request has been answered. When using CPRS, the "View Alert" system can fulfill this role. Interfacility consults should adopt the interfacility consult mechanism in CPRS that allows the distant site clinician to respond to the consult, and alerts the originating site clinician that the consult request has been answered with a post-consult note/management and treatment recommendations. If consults are being conducted outside the CPRS medical record, some mechanism analogous to the View Alert system should be implemented

***Real-time interactive modality*:**

Because of the real-time nature of this consult modality, the originating site clinician receives immediate feedback on a diagnosis and treatment plan. While this allows for simultaneous implementation of the distant site provider's recommendations, the timing of implementation will still be guided by the diagnosis and treatment plan offered by the distant site clinician, and whether the originating site clinician is in agreement or not. The originating site clinician is responsible for follow-up on distant site clinician's recommendations.

Section 4: Telerehabilitation Clinical Specifications

CLINICAL PROTOCOLS, POLICIES AND PROCEDURES

There are no absolute VHA specific clinical protocols for delivering telerehabilitation. However, each steering committee is encouraged to develop their individualized clinical protocols based upon the anticipated resources and applications available.

A collection of protocols and guidelines for both store-and-forward and real-time telerehabilitation can be found at the American Telemedicine Association's Web site, in the telerehabilitation section of http://www.atmeda.org/ICOT/icot.htm

CLINICAL ADMINISTRATIVE ISSUES

CPRS Referral Forms:
Applies to the following telehealth settings:

1. Between two VHA medical center facilities
2. Between a VHA medical center facility and a Community Based Outpatient Clinic (CBOC)

Clinic-based teleconsultations (real-time and store-and-forward) can be requested by remote facility providers using Inter Facility Consults (IFC). You may want to have separate CPRS IFCs for specific sub-specialty telerehabilitation programs, depending on how you want to track the program. If it is not important to track the progress of specific telerehabilitation programs, it may be simplest to have one CPRS IFC for the telerehabilitation program. Work with your local CPRS clinical applications coordinator (CAC) to set up the IFCs. Your local CPRS CAC is the best person to facilitate correspondance with remote/referral site CACs to properly set up the IFCs, and to facilitate any future changes to the IFCs.

CPRS Encounter Forms:

A telemedicine location title will be used for all telemedicine visits (SCI Telehealth, TBI Telehealth etc…). IFCs will be closed with a consult report title consistent with specific type of telerehabilitation service provided. Clinic and/or hospital location titles may reflect multiple sub-specialty telerehabilitation clinics or one all encompassing telerehabilitation service. On a practical level, it is important to distinguish “tele” vs “telemed” in the clinic and/or hospital location title. Specifically, “Tele” can refer to a telephone or telemedicine encounter, whereas “Telemed” or “Telehealth” is clearly a telemedicine encounter.

Encounter forms attached to telemedicine locations must have the appropriate telemedicine encounter codes and modifiers

Coding and Workload Credit:

VHA guidance for telehealth coding is available at http://www.va.gov/telehealth

For new clinic-based telerehabilitation programs involving multiple VA facilities, there may be administrators who have valid concerns that workload credit is appropriately allocated for the originating site vs. distant site for telehealth encounters. Currently, the coding guidelines for Store-and-Forward encounters are in development and are expected to be implemented beginning October 1, 2005. It is important to involve a local Health Information Management Service (HIMS) contact to disseminate and provide advice on changes in telehealth coding guidelines.

REFERRAL FOR TELEREHABILITATION SERVICES

General inclusion criteria for the Home Telehealth Programs include:

1. The veteran and provider consent to participate.

2. The veteran and/or caregiver are capable of operating the equipment.
3. The veteran has had an initial face-to-face evaluation by a specialist and has a clinician provider available in clinic for follow-up care as needed.
4. The veteran and provider communicate in the same language.

General exclusion criteria for Home Telehealth Programs include:

1. The veteran or provider refuses to participate.
2. The provider judges that the veteran's problems are not well suited for current home-based interventions.
3. The veteran or caregiver is not able to operate telehealth equipment reliably.
4. The veteran's home situation does not support safe or effective installation and use of the equipment.

In addition to these general criteria, specific criteria may be developed for different programs.

The Multiple Sclerosis Centers of Excellence (MSCoE) have developed criteria for veterans and providers with Multiple Sclerosis who would participate in home telehealth and teleconsultation programs. Veterans are eligible to participate in these programs if any of the following clinical or health care utilization criteria are factors:

1. Clinical issues put the veteran's health at risk and this can be managed by a telehealth intervention.
2. Veterans are at risk for decline and/or high resource use due to medical, psychosocial, or mental health complexity.
3. Veterans have a high utilization of VA facilities for problems that could be effectively managed at home.
4. Veterans have a high frequency of ER or CBOC visits.
5. Veterans have repeat and frequent inpatient admissions.
6. Veterans are receiving non-VA care at VA expense including outpatient fee for services for home care, medical, pharmacy, home infusion therapy, contract nursing home, adult day health care and homemaker/home health aide programs.
7. Travel for veterans is difficult due to specific impairments or disabilities.
8. Travel for veterans is difficult or costly due to distance.

Criteria may be developed to identify rehabilitation providers who may serve as Care Coordinators. The Multiple Sclerosis Centers of Excellence developed the following criteria.

Clinicians are candidates for providing care via telehealth techniques if they:

1. Offer MS care in Veteran Medical Centers, non-tertiary VA sites, VA-affiliated Community-Based Outpatient Clinics (CBOCs), or State Veteran Homes.

2. Have received appropriate training on the equipment and adequately demonstrated their abilities to use that equipment properly and effectively, as well as to troubleshoot common problems.
3. Are privileged in the facility where the patient is being seen in order to provide direct care to the patient. Privileging is not required for provider-to-provider consultation.
4. Have conducted an assessment of the veteran to determine if medically they are appropriate for telemedicine and if the patient has the capabilities or support to make use of the telehealth equipment.

Discharge criteria from Home Telehealth programs include:

1. Veteran has met treatment goals or in the view of his/her providers has reached maximum benefit from the program.
2. Provider judges that home-based intervention has proven unsuccessful.
3. Veteran decides to discontinue home-based care.
4. Veteran is unable to adhere to treatment program and goals.
5. Veteran transfers care to another agency or facility.
6. Death.

In order to better articulate various criteria, the VA MSCoE have worked to identify specific issues for MS patients that can be effectively managed at home. Initial telehealth interventions have shown to be helpful in managing veterans with MS who

1. Need additional support managing their MS with a new disease modifying agent
2. Have secondary impairments associated with MS such as decubitus ulcers, fatigue, depression, pain, and spasticity;
3. Have other comorbid medical illnesses (e.g. diabetes mellitus); and
4. Have significant difficulties getting to the outpatient clinic due to disabilities, lack of attendant support, or distance.

For example, home-based telehealth has been useful in initiating and titrating medications for disease modification and for associated secondary impairments, and for providing veteran and attendant emotional support. This type of information may be useful in developing additional programs.

Inclusion Criteria for Specific Clinical Telerehabilitation Groups:

Home-based programs:

- Refer to the VHA Care Coordination Home Telehealth Orientation Packet for guidelines:
  http://vaww.va.gov/occ

Clinic-based programs

1. Traumatic Brain Injury
   Full Rancho scale – how alert agitated the patients are, other psychosocial issues. Will depend on type of program, distance from the facility.

2. Spinal Cord Injury/Disorders
Inclusion criteria for teleconsultation between medical facilities-patient currently receiving home care, complex SCI medical issues, remote location from SCI center (i.e. hub site)

3. Multiple Sclerosis
As described above.

4. Frail Elderly

Inclusion criteria: Need assistance with 2 or more activities of daily living or if living independently assistance with devices transfer or mobility devices.

LAMPReferral.pdf

5. Specialty Clinics
Significant geographic distance, poor support system

Exclusion Criteria for Specific Clinical Telerehabilitation Groups:
General Exclusion criteria include unwillingness to participate.

Home-based program

- Refer to the VHA Care Coordination Home Telehealth Orientation Packet for guidelines: http://www.va.gov/telehealth/toolkits_home.asp

Clinic-based program

- Exclusion criteria for teleconsultation between medical facilities-routine issues that can be managed by facility clinics

LOCATION OF TELEREHABILITATION SERVICES

- Between two VHA medical center facilities
- Between a VHA medical center facility and a Community Based Outpatient Clinic (CBOC)
- Inter VISN programs (SCI, TBI)
- Between a VHA medical center facility and a patient's home
- Between VHA medical center and private hospital, transitional living facility, longer term care
- Other telerehabilitation settings

The originating site, whether it be a store-and-forward or real-time interactive consult, is designated as the site of treatment. This would include any facility that is functioning as the referral site. Follow-up care can be arranged via in-patient clinic visits at originating site or distant site locations, or telerehabilitation as agreed upon by the patient, distant site provider, and originating site clinician.

SCHEDULING ISSUES FOR TELEREHABILITATION SERVICES

1. Between two VA medical center (VAMC) facilities
2. Between a VAMC facility and a Community Based Outpatient Clinic (CBOC)
3. Case by case with VA and other private facilities.
4. Between VAMC and home

Scheduling for teleconsultations between VA facilities is most challenging, as it involves the schedules of multiple clinicians at multiple locations (and may also involve the room availability schedule where the videoconferencing unit is housed).

STAFF PROVIDING TELEREHABILITATION SERVICES

- Occupational therapists
- Physical therapists
- Speech pathologists
- Psychologists
- Physicians
- Nurses
- Recreation Therapists
- Social Workers
- Vocational Counselors
- Technician for installations, technical support

It is important to note that:

- Care Coordinators must be licensed clinicians.
- Originating Site Referring Clinicians : any clinician with privileges to refer patients to a Telerehabilitation Consult Service, will also follow-up on distant site provider's recommendations
- Distant Site Consulting Clinicians provide recommendations for management and treatment
- Real-time interactive consults usually require a telepresenter. A telepresenter may or may not be the originating site individual that initiates the consult. The telepresenter is responsible for the using the video-conferencing technology.

Credentialing and Privileging

Credentialing and Privileging of clinicians involved with clinic- and home-based telehealth programs is explicitly addressed in the following VHA directives:

VHA Directive 2002-042, The Credentialing and Privileging of VHA Health Care Providers Remotely Delivering Health Care to Patients at Home, in Vet Centers, and in Non-health Care Settings via Telemedicine and/or Telehealth
http://vaww1.va.gov/vhapublications/ViewPublication.asp?pub_ID=189

VHA Directive 2001-055, The Credentialing and Privileging of Telemedicine and Telehealth Services Provided in Hospitals and Clinics
http://vaww1.va.gov/vhapublications/ViewPublication.asp?pub_ID=127

Training and Competency:

In addition to credentialing and privileging, competency with equipment use and with performing procedures should be verified for each clinician or staff member prior to his/her participation in telerehabilitation.

For real-time applications, It would be desirable to have a distant site coordinator provide technical and administrative support to referring sites. If budgets allow, it is best to have a central coordinator that is not directly involved with clinical care. This minimizes the burden on clinicians, and fosters expertise and consistency in the overall administration of the telerehabilitation program, and in the technical use of equipment. Staff who have a personal interest in technology are ideal candidates.

Training needs will vary depending on the modality and technical level of telerehabilitation chosen, although the principles of patient confidentiality and HIPAA regulations permeate all types of telehealth:

Store-and-forward telerehabilitation may include the following training (depending on devices used with telerehabilitation program):

For originating site clinicians:

How to enter CPRS consults

Use of VISTA Imaging software to upload digital images

Protocol for photographing digital images (e.g. for wound assessment)

Use of medical systems to perform evaluations, the results of which are discussed at a later time following the procedure.

Real-time interactive telerehabilitation requires the following training:

- How to operate videoconferencing equipment
- How to connect peripheral devices for use with videoconferencing equipment
- Logistical background (CPRS referral, scheduling, security, support, coding)
- Using telerehabilitation clinical protocols, confidentiality, patient photo and video informed consent, ethical standards)
- Conducting the visit (telehealth interviewing techniques and tips to improve communication)

Examples of ways to establish competency are:

- having the clinician demonstrate that he/she can use the equipment to someone experienced with telehealth (i.e. practice sessions)
- having the clinician read this toolkit

- having the clinician view any of the VHA Employee Educational System (EES) satellite broadcasts and any mandatory on-line training
- having the clinician complete a similar or comparable training experience
- having the clinician review VA Directives, VISN and facility policies regarding telehealth

Refer to the home telehealth toolkit for training and competency issues as they relate to home-based telerehabilitation applications. Telehealth competencies must be documented in the employees Human Resource folder.

Section 5: Technical Equipment Specifications

The basic requirement for patients to participate in home-based care is a functional POTS (Plain Old Telephone Service) line with long distance service. This service is necessary for the transmission of clinical data and communication with the supporting medical center. POTS lines support telehealth equipment currently used within the VA. Use of videophones also requires that the supporting clinician within the VA have a dedicated line that is not channeled through the digital VA telephone system.

Inventory of existing equipment:

After deciding which sites will participate in the telerehabilitation program and which mode of delivery (store-and-forward vs. real-time) will be used, attention should be turned to the equipment and technology portion of telerehabilitation. Some of the intended sites may already have existing equipment used for other programs that can be used or added to and very little new equipment may be needed. Many CBOC's already have videoconferencing equipment used for administrative meetings, etc. that could be made available for clinical use at certain periods of time.

Before purchasing new equipment, a decision should be made on which peripheral accessories will be needed. This may include the purchase of new videoconferencing systems, as well as medical devices that may be used in conjunction with the videoconferencing systems, or accessories that are critical for putting all the equipment/devices together. Examples of medical devices that may be used with videoconferencing systems include digital cameras, camcorders, pressure mapping system, and urodynamic evaluation systems. Examples of peripheral accessories include VGA or S-video cables, adapters and converter devices.

Inventory of existing equipment and determining the need for more or new equipment is crucial for purchasing all the necessary equipment within the budget available. Technical specifications and cost of videoconferencing equipment and peripheral accessories can change dramatically over the course of a few months.

It may not be cost-effective to buy an entire videoconferencing set up from a single vendor. Purchasing the monitors and speakers separately from the videoconferencing system will likely result in a better quality system, however a lot more research needs to

be done. Specifically, one needs to be aware of the input and output ports available on the videoconferencing system, and make sure that the peripheral devices purchased use cables that are compatible for use with the videoconferencing system.

Much of the videoconferencing equipment and peripheral devices used in telerehabilitation is portable and marketable to the general public. A locked area needs to be identified for secure storage of equipment. The equipment should also be in a room that meets the privacy and security needs of patients in a clinical setting. These issues need to be addressed long before the clinic commences.

Purchasing the Equipment

The telehealth steering committee within your medical center or VISN can help with contacts at the local or VISN level to help procure the equipment. There is usually a network administrator in Information Technology (IT) at the VISN level who knows which sites have equipment. This person will be able to answer questions on availability of equipment or give contact information for the Informatics staff in the medical centers and CBOC's.

If possible, it is most helpful to assign a telerehabilitation coordinator to determine the technological needs of the clinicians involved with telerehabilitation, and facilitate communication with IT personnel to determine how to integrate the technical needs of clinicians within the technical infrastructure of the VISN involved. The telehabilitation coordinator will likely need to research appropriate technical equipment for telerehabilitation use, contact vendors to provide demonstrations. Because new technologies are often involved, the coordinator may need to facilitate communications between sales and VHA technical personnel.

After a list has been developed for all the necessary technical equipment and peripheral devices needed for the telerehabilitation program, equipment procurement can be a challenge for the following reasons listed below:

- VA's Acquisition & Materiel Management Service (AMMS) staff assigned to procure equipment for a multi-site telerehabilitation program may be at a different location than the coordinator assigned to complete all the paperwork needed to procure the equipment for all sites
- Need to be aware of AMMS procurement regulations. Specifically, a piece of equipment requested of telerehabilitation clinicians involved, may be from a vendor that does not have a government contract. This can really delay the purchase of equipment, as the item requested needs to be placed for competition. When this occurs, the telerehabilitation service may end up with comparable devices that may not be from the preferred vendor.
- Need to be aware of purchase cost limits for any given purchase order, below which the acquisitions competition process may not be necessary (delays purchase process). This may be important information to know when a telerehabilitation program needs to buy multiple quantities of a smaller peripheral device.

A coordinator can assist with the challenging decision making and procurement process. It is worth shopping around. The cost of equipment and peripheral devices can range dramatically, and technical quality is not necessarily correlated with price.

Informatics Support

It is imperative that the VISN and local Informatics Service Line is involved in the planning of any new telerehabilitation program, especially real-time clinics, from the beginning. The VISN and local CIO's support is critical to the success of telehealth initiatives. Develop a working relationship with these staff. They can help with miscellaneous technical questions and training with VISTA Imaging for store-and-forward. They will know current problems, future plans for the system, and the bandwidth available. This information will minimize the many technical challenges that the clinic coordinators already face.

Information Security

The facility ISO should be involved in the planning stages to make sure the proposed telerehabilitation program is HIPPA compliant. This is also the contact for staff to receive access to other facilities if needed.

CLINIC-BASED VIDEOCONFERENCING EQUIPMENT

If a real-time telerehabilitaiton clinic is to be implemented, videoconferencing equipment such as that used for videoconferences between facilities should be acquired.

The most important considerations for real-time telerehabilitation are:

- the videoconferencing systems located at collaborating sites are compatible.
- the systems use the same video application protocols.
- there is sufficient bandwidth for transfer of images/video/data between collaborating sites for the application

Bandwidth availability is very important for real-time telerehabilitation. This is especially true if the telerehabilitation program uses a videoconferencing system designed to integrate with network databases and specialized medical devices (e.g. pressure mapping, urodynamic, ultrasound, X-ray, digital cameras), which also allows for the simultaneous transmission of text or picture files and video images. This set up allows providers at both ends to view and discuss digital images and diagnostic test results, but also requires a lot of bandwidth.

If the system is competing for bandwidth with data traffic on the network, there will be disruption in video and audio, and it will be hard to communicate effectively. The IT personnel should be available by phone at all times for technical problems. These are real clinics with real patients and if end users are not able to rely upon the technology, they will cease use of it and return to in-person clinics.

HOME-BASED VIDEOCONFERENCING EQUIPMENT

Purchasing home-based videoconferencing equipment is generally simpler than setting up a real-time clinic-based videoconferencing system. One may need to check that peripheral devices are included with the home-based videoconferencing system (e.g. extension cords, telephone cords, splitter for telephone line, 3 to 2 prong converter for use with home electrical outlet).

The VHA Care Coordination Home Telehealth Orientation Packet provides comprehensive information on technical requirements, equipment safety and failure issues, information security, equipment maintenance and infection control, VHA technology assignment algorithm (i.e. matching patient to technology) and inventory tracking.
http://vaww.va.gov/occ/natl_rollout/OCC_Orientation_Packet_Nov_2004.pdf

OTHER HOME-BASED EQUIPMENT

In-home messaging devices, videophones, and other technology may be used to link to patients in their homes. Web –based interactive treatment equipment may also be utilized.

MATCHING VETERANS AND TECHNOLOGY

Although not generally an issue with clinic based telehealth systems, as there is a clinician where the patient is receiving consultation to assist if/when technical issues arise, the VHA Office of Care Coordination Technology Assignment Algorithm should be used to determine the most appropriate technology for a given patient.
http://vaww.va.gov/occ/natl_rollout/Appendix_4F.pdf

Section 6: Physical Space Specifications

CLINICAL SPACE ISSUES

Although funding may be available for clinicians to purchase equipment for telehealth initiatives, finding appropriate clinical space to use telehealth equipment is often a challenge.

For SCI patients, depending on the type of applications that will be used with a clinic-based teleconsultation program, you may need a room that can accommodate for the following:

- Videoconferencing system set-up
- Desk space for clinician use
- Peripheral medical devices that may be used with videoconferencing system (e.g. computer, pressure mapping system, urodynamic evaluation system)
- Lift device to assist with moving patient

HOME SPACE ISSUES

Desktop space required for messaging devices and videophones.

High-speed (a.k.a. high bandwidth) connection required for interactive Web-based initiatives. May be difficult in Rural areas depending upon availability of DSL Cable (most common), DSL Telephone, or High-speed satellite.

Section 7: Evaluation and Outcome Measures

Planning for program evaluation should be performed in tandem to needs assessment.
Based on goals identified in needs assessment.
To justify continuing and/or expanding program.

EVALUATION

Consider putting together IRB proposal to formally evaluate program

- Quality of Care
- Access to Care
- Patient Satisfaction
- Clinician Satisfaction
- Economic Impact

OUTCOME MEASURES

In addition to the general measures tracked by the Office of Care Coordination's Home Telehealth program such as number of hospital admissions, clinic visits and ER visits, there may be more specific rehabilitation measures that are useful to track. One such measure may be the Functional Independence Measure Score that is entered into the Functional Status and Outcomes Database.

Quality of Care

- Requires solid study design - may take several years to detect difference.
- Should consider both process and outcome of care measures.
- Must rely on accepted clinical metrics, but should also consider expanded definition of health
- Examples: prompt assessment of specific rehabilitation issues, patient satisfaction, patient access to care

Evaluation of Increased Patient Access:

- Can have questions for clinical providers to report likeliness that patient would have traveled to SCI center for evaluation in lieu of teleconsultation option
- Can also track number of first time patient evaluations that directly result from having access to telerehabilitation program

Patient Satisfaction

- Overlap with quality of care measurement.
- Difficulty in finding an acceptable control.
- Must consider satisfaction with care received, privacy concerns, comfort-level with technology used.

- VA has a survey that can be modified for specific telerehabilitation program http://www.va.gov/telehealth/toolkits/hometelehealth/8b_va_patient_survey.pdf

Provider Satisfaction

- Difficult to measure among early adopters.
- Complicated by licensure, litigation and reimbursement concerns
- Must consider workflow / turf issues.
- Should consider impact on all clinical and support staff.
- VA has a databank form that can be customized with additional questions specific to a Telerehabilitation program
- http://www.va.gov/telehealth/toolkits/hometelehealth/8d_item_bank.pdf

Informal Provider Reports:

- May not want to use standard survey with clinicians, as participating providers tend to already have a positive view/interest in telehealth programs
- Qualitative assessment of teleconsultation process
- Qualitative data can be categorized

Increase Provider Education:

- exchange between providers, training and education of providers

Economic Impact

- Feedback on estimated resources required versus actual resources consumed.
- Capital investment, expenses and overhead.
- Should consider costs / savings from a system-level perspective
- Labor / supply costs may be measured
    - (workflow) analysis, clinicians and support staff, distal and local sites
- Projected cost savings from travel for outpatient evaluations and inpatient admissions

Section 8: Sustaining the Program

New Telerehabilitation Program Challenges

Some Clinic-Based Telerehabilitation Program Challenges:

- Overall Set Up
- Equipment acquisition and maintenance
- Variability in technical skills
- Local clinical responsibilities take precedence
- Scheduling conflicts
- Physical space restrictions
- Changes in existing workload
- Protection of local patient base
- Local nurse coordinator/physician interest and commitment critical
- Standardization of procedures and documentation

Suggestions for Sustaining Telerehabilitation Program

Training Providers. Providers like feedback that they are doing a good job. Number of visits – feedback for providers.
Partnering with EES
National Telehealth Training Centers
Reaching out demonstrations from MS Centers to all VHA facilities
Satellite Broadcast Telehealth VAKN – Develop good practice/ bad practice scenarios

Be innovative. Since it takes time to formally establish a clinical program and/or publish new program outcomes, consider seeking other research or clinical grants/funding to sustain/expand various aspects of the newly developed program. This may include collaborating with multiple sites to submit innovative proposals for additional funding to support further evaluation research. Research results involving multiple sites and greater patient numbers will help to demonstrate the value of, as well as sustain, new telerehabilitation programs.

Section 9: Research and Telerehabilitation

There is almost an endless list of possible research projects designed to evaluate various VHA Telerehabilitation programs, as described previously.

The MSCoE's have initiated pilot research studies which provide a framework for future investigation. As these Centers develop and expand implementations they will assess the business and health care utilization issues pertaining to home-based care in MS. To make these assessments they will review the following factors:

- *Cost of equipment needed to obtain accurate and usable results*: The specific equipment needs will vary depending upon the specific implementation. Quality visual images of skin lesions require more expensive equipment than is needed to simply exchange information. However, the additional cost of photographic information may prove warranted if it prevents patients from developing serious complications. Equipment costs will be tabulated by need and anticipated gain.
- *Clinical Costs*: Home telehealth requires that a clinician be available to monitor patients and receive training in the use of the equipment. These time and salary costs will be tabulated.
- *Treatment Costs and Patient Health Care Utilization Patterns*: We will assess the degree to which specific problems were managed successfully at home and calculate projected savings based on the usual costs of treating these problems by way of clinic visits or hospitalizations. We will track patients being followed by way of home telehealth and compare their frequency of clinic visits and hospitalizations pre and post enrollment into the telehealth program. When possible, we will also compare utilization patterns for patients with similar disease profiles followed at home vs. those receiving customary care.
- *Treatment Compliance*: A general problem in health care is patient compliance with treatment. This issue is especially salient in the context of a progressive disease with more difficult to manage treatments. Hence, we will monitor the success of

home-based care as relates to the ability of patients to manage and adhere to their treatment regimens.

Transportation Expense and Time: A number of factors are involved in calculating savings in transportation costs and time. A clinic visit can turn into a daylong event for patients traveling long distances or for non-ambulatory patients waiting for ambulance or wheelchair van assistance. We will keep track of the distance and typical transportation needs of MS veterans using home-based telehealth. We will use this information to calculate transportation cost and time savings.

Patient and Provider Satisfaction; MS patients being followed at home will be surveyed regarding their perception of the quality of care they receive via telehealth and their assessment of the advantages of this type of care and the concerns they may have about home telehealth. We will also survey providers regarding their perception of this type of care and their confidence in the quality of treatment they are rendering.

This framework provides a starting point for additional telerehabilitation research projects.

Possible Funding Sources for VHA Telerehabilitation Research:

1. U.S. Department of Health & Human Services

National Institutes of Health NIH

RESEARCH PARTNERSHIPS FOR IMPROVING FUNCTIONAL OUTCOMES
RELEASE DATE: March 18, 2004 PA NUMBER: PAR-04-077
EXPIRATION DATE: October 14, 2006, unless reissued
"The partnership must include appropriate individuals with clinical expertise related to rehabilitation in combination with biomedical, psychosocial-behavioral, engineering, epidemiological, and/or health services researchers."

o Studies investigating methods to improve the integration of rehabilitation services across multiple settings (e.g., hospitals, nursing homes, home care, primary care, etc.) and the coordination with other care received by patients. Such studies could address methods for improving how clinical information is shared as patients move from hospitals to rehabilitation centers, to homes, and back to hospitals, etc., and the impact on outcomes.

o Develop and test the efficacy of alternative delivery systems (e.g., telemedicine), providers, and settings for the rehabilitation of patients with specific diseases or conditions.

Complete detail available online at:
http://grants1.nih.gov/grants/guide/pa-files/par-04-077.html

2. U.S. Department of Veterans Affairs

Stroke Quality Enhancement Research Initiative (QUERI)

One time only (proposals due Mar 21, 2005) however, included here as an example of a type of funding for VHA Telerehabilitation research.

Attached are Eligibility Requirements and general information about this research funding effort

2005 LIP.doc

For additional information about VHA's QUERI please see their Web site at:

http://www.hsrd.research.va.gov/queri/

3. U.S. Department of Education

National Institute on Disability and Rehabilitation Research (NIDRR)

NIDRR has a network of individual research centers and projects across the country. Most NIDRR grantees are universities or providers of rehabilitation or related services. The best entry point for VHA Telerehabilitation research is through NIDRR's Rehabilitation Engineering Research Centers (RERC's) that 'seek to find and evaluate the newest technologies, products, and methods that ultimately can benefit the independence of persons with disabilities…' The RERC's conduct programs of advanced research of an engineering or technical nature designed to apply advanced technology, scientific achievement, and psychological and social knowledge to solve rehabilitation problems and remove environmental barriers. Each center is affiliated with one or more institutions of higher education or nonprofit organizations.

Additional details about NIDRR grant funding is available online at the NIDRR Web site at:
http://www.ed.gov/fund/grant/apply/nidrr/index.html

Section 10: Educational Initiatives

Of great importance in developing a telerehabiltation program is provider education as to the benefits of Telehealth. This will serve to generate referrals as well as insure proper follow-up in medical center clinics.

Examples of Telerehabilitation Educational Efforts are noted:

Telerehabilitation Satellite Broadcast:
The Offices of Care Coordination and Physical Medicine and Rehabilitation collaborated to produce a satellite video conference on telerehabilitation in June, 2004. Areas highlighted included home and clinic telerehabilitation programs, development of a Field Workgroup and development of a Toolkit. The satellite broadcast was taped and is available in the library at many facilities.

Three national satellite broadcasts are scheduled or in the planning process. The first, an update on fatigue is scheduled for April 17, 2005. An update on disease modifying agents is planned May 10. Two other satellite broadcasts, one on Telehealth and MS and one on MS, are planned for summer and fall, 2005. Based on our survey it is apparent that education and training on the delivery of telehealth is needed. The MSCoEs are working together to develop the content, determine the best means to deliver the content, and to schedule training activities.

Audio Case Conferences in the Western Region:
MSCoE West has begun a series of bimonthly case provider-provider noon case conferences throughout the Western region using VANTS teleconferencing and e-mail power point slides. While a large focus is educational, the presentation is selected from a current clinical problem and consultation has impacted the clinical care of the individual and others throughout the Region. The conferences are well attended and reviewed highly by participants. We are exploring whether to offer these conferences more frequently, to provide them in an audio video teleconference format, as well as to archive them on a secured provider website.

National Video Teleconference:
The MSCoEs collaborated on a national audio video teleconference to provide staff education. This conference on cognition and mood disorders was broadcast to over 30 VA Medical Centers and attended by over 300 staff members. The staff appreciated the content and that they didn't need to travel any distance. Feedback indicated that providers changed clinical behaviors as a result of this tele-educational effort. Some sites attended who were new to us and joined the regional council.

Regional Video Teleconference:
MSCoE West has also done a half-day audio video teleconference to the spoke sites in VISN 20 on common problems in MS. This was well attended and received.

MSCoE Website:
Finally the MSCoE website, which our access data indicates is visited by thousands of veterans and providers each month, has played an indirect role in telehealth that may deserve future exploration. Veterans ask questions to the Website, and generally these questions relate to personal health issues. In a few cases, veterans have even asked questions about the scheduling and logistics of individual visits to VA clinics. In one case, a clinic was unable to contact a veteran living in a remote area, but through the website he was found and advised about his visit. This web-based exchange of information may supplement telehealth efforts in the future.

Section 11: Resources and Links

Publications:

Phillips, V.L., Vesmarovich, S., Hauber, R., Wiggers, E., Egner, A. Telehealth: Reaching out to newly injured spinal cord patients. Public Health Reports 2001; 116 Supplement: 94-102.

Strasser, D, Falconer, J, Herrin, J, Bowen, S, Stevens, A, Uomoto, J Team functioning and patient outcomes in stroke rehabilitation Archives of Physical Medicine and Rehabilitation 2205 Mar:86(3):403-9

Hoenig, H, Taylor, D Jr, Sloan, F Does Assistive Technology Substitue for Personal Assistance Among the Disabled Elderly. American Journal of Public Health 2003 Feb;93(2):330-7 available online at http://www.ajph.org/cgi/content/full/93/2/330

Hoenig, H, Siebens, H, Research agenda for geriatric rehabilitation American Journal of Physical Medicine and Rehabilitation 2004 Nov:83(11):858-66

Hatzakis, M Jr., Haselkorn J, Williams R, Turner A, Nichol P Telemedicine and the delivery of health services to veterans with multiple sclerosis: Journal of Rehabilitation Research & Development 2003 May/June:40(3):265-282 available online at http://www.vard.org/jour/03/40/3/Hatzakis%20M.html

Websites:

VA Links

http://vaww.va.gov/telehealth

Non-VA Links

http://www.biausa.org
http://ww.spinalcord.org
http://www.mscare.org
http://www.aoa.gov
http://www.cdc.gov/aging
http://www.americantelemed.org

Glossary

Telemedicine/telehealth - Consultation: is the provision of advice on a diagnosis, prognosis, and/or therapy using telemedicine, but hands-on care is delivered by a licensed independent health care provider located at the site of the patient (OS). The actual care of the patient, or action on the advice, is performed by a licensed independent provider at the OS who determines the appropriateness of the advice for action, i.e., a cardiology consultation where a licensed independent provider at the site of the patient implements the advice through orders or other means and then monitors the status of the patient. Consultation is therefore when the consultant involved in providing telemedicine/ telehealth recommends diagnoses, treatments, etc., to the provider requesting the consult, but does not actually write orders or assume the care of the patient (Note: this is in accordance with the DSS definition of Consultation as a type of Evaluation & Management (E&M) service provided by a clinician whose opinion or advice regarding evaluation and/or management of a specific problem is requested by another clinician).

Telemedicine/telehealth – Care: is the provision of advice on a diagnosis, prognosis, and/or therapy using telemedicine where part of the care delivered at the site of the patient (OS) is authorized by the licensed independent health care provider at the DS. Care is therefore when the provider at the DS recommends diagnoses, treatments, etc., to the OS and actually writes orders or assumes, all or part of, the care of the patient.

Originating Site (OS): is the 'patient site' where the patient is physically located at the time the telemedicine service is provided. It is the site requesting consultation advice or care management support from a provider located at the distant site (DS). Each episode of care that is coded at an OS must be paired with the corresponding component of care that is coded at the DS. An OS site may be a CBOC, Vet Center or VAMC.

Distant Site (DS): is the 'provider site' where the provider providing the professional service is located. The DS may be one of 2 kinds. The first kind of DS is one where the DS shares the same STA3 (Station Number) as the OS e.g., a CBOC affiliated with a VAMC. The second type of DS is one where the DS and the OS have different STA3's (Station Numbers) e.g., a CBOC and a VAMC within the same VISN are not affiliated or where the DS and OS are in different VISN's.

Real-time Telemedicine/Telehealth: Data acquisition, processing, transmission and presentation of patients/patient data are all occurring simultaneously. This term means there is synchronous (live) communication between the parties at either end of the telecommunications link.

Store and Forward: The asynchronous transmission of information, e.g. in the form of still images, audiovisual clips, or other multi-media clinical data derived from a clinical encounter by a practitioner to an intermediate storage device from which the data can be retrieved by another practitioner at a later time for the purposes of providing a consultation or report.